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54 Sectional element motor-driven for controlling overhead doors.

57 A motor-driven device for controlling an overhead door (15), comprises, in combination: a self-propelling motor (10), a guide (11) adapted to be fixed to a wall of the location (14), along which guide (11) the said self-propelling motor (10) translated, and means (30) for connecting the said self-propelling motor (10) to the said overhead door (15), wherein the said guide (11) consists of at least two pieces of section iron which can be rigidly interconnected by joining means (22).

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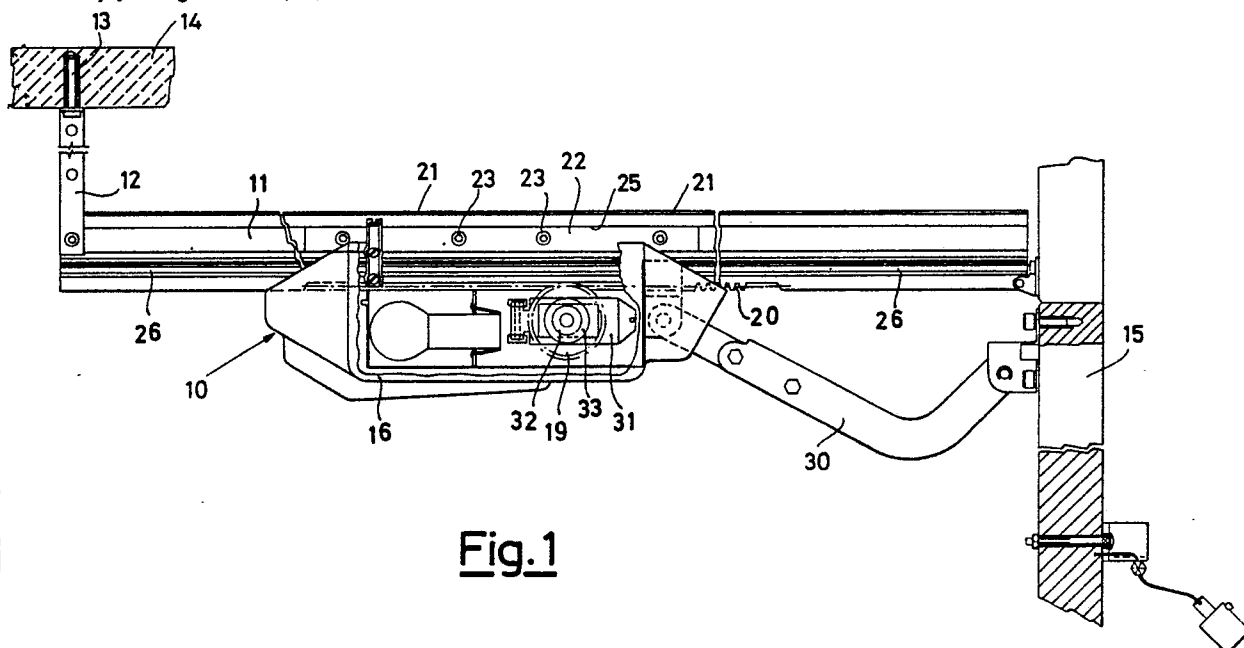


Fig.1

SECTIONAL ELEMENT MOTOR-DRIVEN DEVICE FOR CONTROLLING OVERHEAD DOORS

The present invention relates to an improved device for motor-driven control of overhead doors, for example for garages.

Devices of this type are well known to persons with ordinary skill in the art, and they can provide for a motor fixed to the ceiling which controls the door by means of linkages or, alternatively, a self-propelling motor that translates along a guide fixed, in general centrally, to the garage ceiling. In this latter case, the self-propelling motor is connected to the door, usually its upper part, by an articulated linkage, the said upper part stopping proximal to the garage or other ceiling when the overhead door is opened, and the said motor being moved by the agency of a worm-and-nut mechanism.

The translation of the self-propelling motor in one direction or the other will cause, respectively, the closing or opening of the overhead door, which is provided with its own lever-and-guide system for guiding its movements.

Control devices employing a self-propelling motor suffer from the disadvantage that the guide along which the motor translates is of considerable length and thereof difficult and very costly to package; transportation costs are also high.

All these factors mean that the unit as a whole is far from ideal for sale as a DIY kit, through the device in question is well suited for use with already existing doors in that the mounting operations required are very straightforward and can be carried out by the party concerned with no call for skilled assistance.

On the other hand, devices of the kind in question employing linkages -generally of the chain type- are somewhat complex and laborious to mount.

The object of the present invention is to obviate the aforesaid disadvantage of the known art by embodying a device for motor-driven control of overhead doors, adapted to be packaged as ready-to-mount kits in boxes of very contained size, which are thus economical and easy to handle. In addition, the control device has a particularly straightforward dependable and advantageous configuration.

The aforesaid object is achieved, in accordance with the invention, by a motor-driven device for controlling an overhead door, of the type comprising, in combination: a self-propelling motor, a guide adapted to be fixed to a wall of the location, along which guide the said self-propelling motor translates, and means for connecting the said motor to the said overhead door, wherein the said guide consists of at least two section iron pieces

which can be rigidly interconnected by joining means.

The said section iron pieces are preferably tubular and formed enbloc from them are two opposed channel-shaped sections anchoring and guiding the said self-propelling motor, and between the said sections, and below them, provision is made for a rack which is engaged by a driven pinion of the said self-propelling motor.

The structural and functional characteristics of the invention, and its advantages over the known art, will become more apparent from an examination of the following description referred to the appended drawings, which show an example of a control device of the kind in question incorporating the innovative principles of the invention. In the drawings:

-Figure 1 is a longitudinal elevation, with parts partially cutaway and sectioned, illustrating the said control device for overhead doors;

-Figure 2 is a plan view of the device of Figure 1, also with parts cutaway and sectioned; and

-Figure 3 is a section taken on the line III-III of Figure 1.

With reference to the drawings, the device according to the invention consists structurally of a self-propelling motor 10 translating along a guide 11. The guide 11 is rigidly fixed by means of support 12 and anchorage 13 to the ceiling 14 of a location (e.g. a garage) closed by an overhead door 15.

This latter can be moved between the open (raised) position and the closed (lowered) position by means of the control device in question.

More specifically, the self-propelling motor 10 comprises a box-shaped body 16 which houses a geared motor 17 on the output shaft 18 which is restrained for purposes of rotation a pinion 19, which is coupled to a rack 20 formed enbloc from the guide 11.

As can be seen clearly from the drawings, the guide 11 consists typically of the combination of several pieces of tubular section iron 21 (in the example shown, two pieces) which are rigidly interconnected by means of lateral plates 22 bolted at 23 to the section irons 21. To this end, as Figure 3 of the drawings clearly shows, the section irons 21 present parallel opposed faces 24, slightly hollowed at 25 so as to be able to accept the said connection plates 22 in a stable manner.

In addition, the section irons 21 feature on their underside a pair of opposed channel-shaped section irons 26, optionally with an anti-friction coating

27, which accept respective mobile anchorage tabs 28 for anchoring the self-propelling motor 10 to the guide 11. The rack 20 is formed between and below the section irons 26.

The numeral 29 indicates the power line supplying the self-propelling motor.

The numeral 30 indicates a conventional linkage which in an articulated manner connects the self-propelling motor 10 to the overhead door 15.

In the event of stoppage of the geared motor 17, the self-propelling motor 10 can be released from the guide 11 by the agency of a lever 31; this lever can be operated from outside the body 16 and acts, against the pressure of a return spring 32, on an appendix 33 of the pinion 19 so as to cause it to translate along the shaft 18, as shown by the arrow F. When the self-propelling motor 10 has been released from the guide 11, the overhead door 15 can be controlled manually in a wholly trouble-free manner, as may be required if there are power cuts or failures.

All the foregoing evidences that the device of the invention, with the guide 11 embodied in more than one piece, can be packed into very small spaces, and thus also in DIY kit containers.

The object mentioned in the introductory part of the description is therefore attained.

Accessory devices that may be required to operate the device, such as stops, limit switches or remote operating controls are not shown inasmuch as they are conventional, and they can have the most advantageous configurations of known accessory devices.

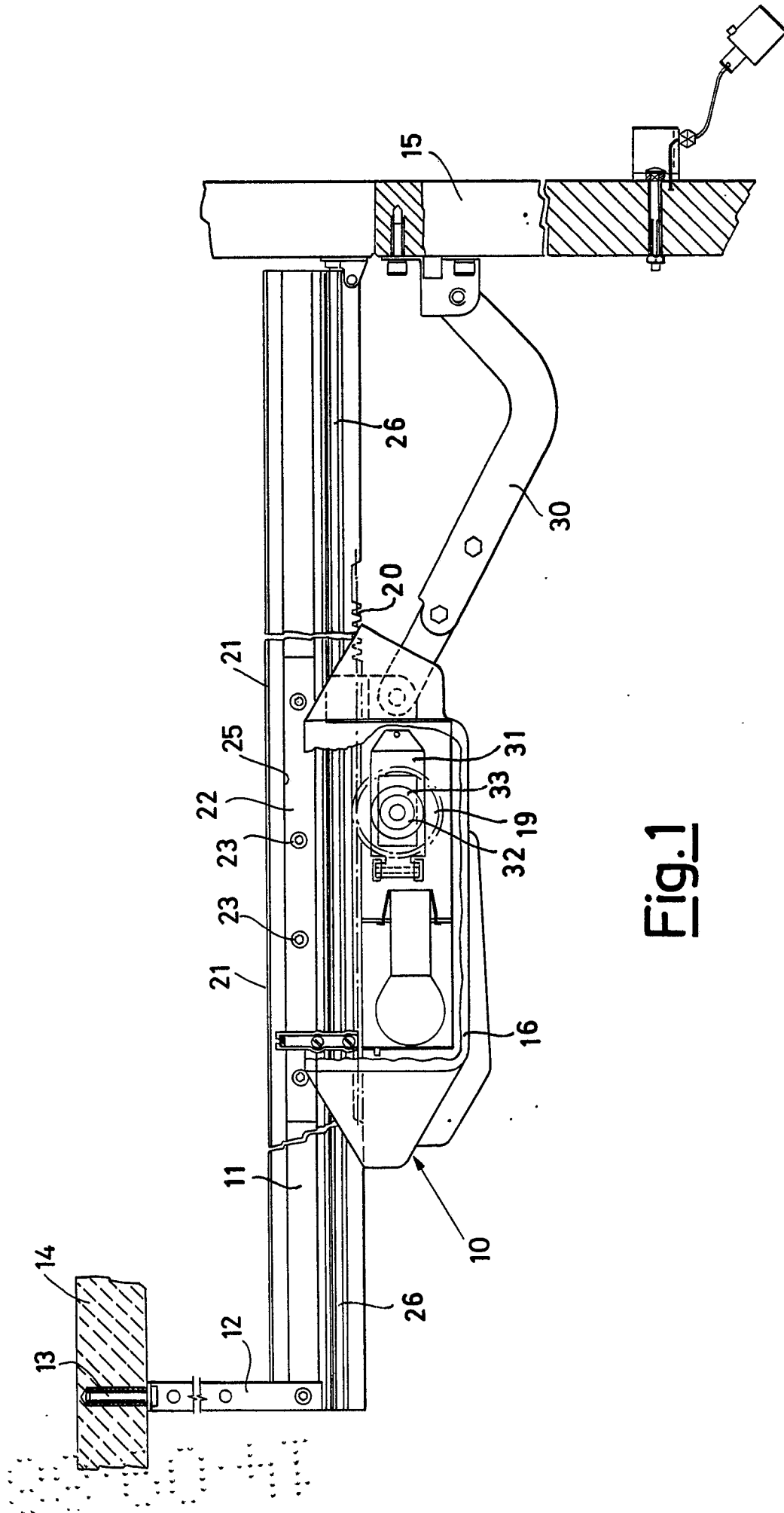
Claims

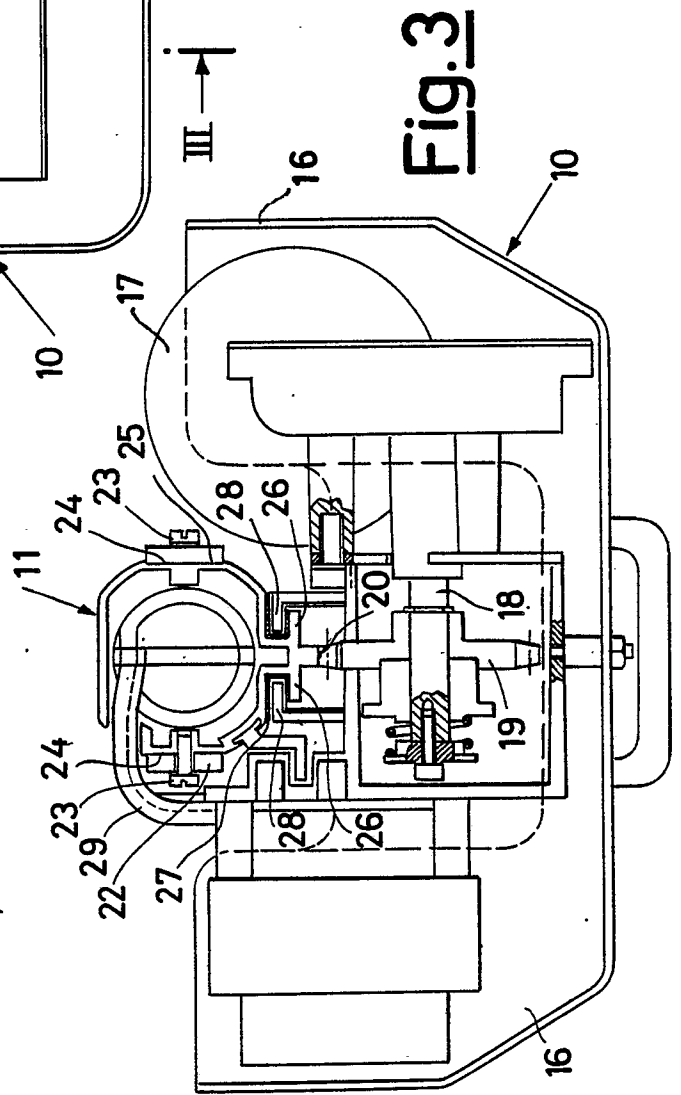
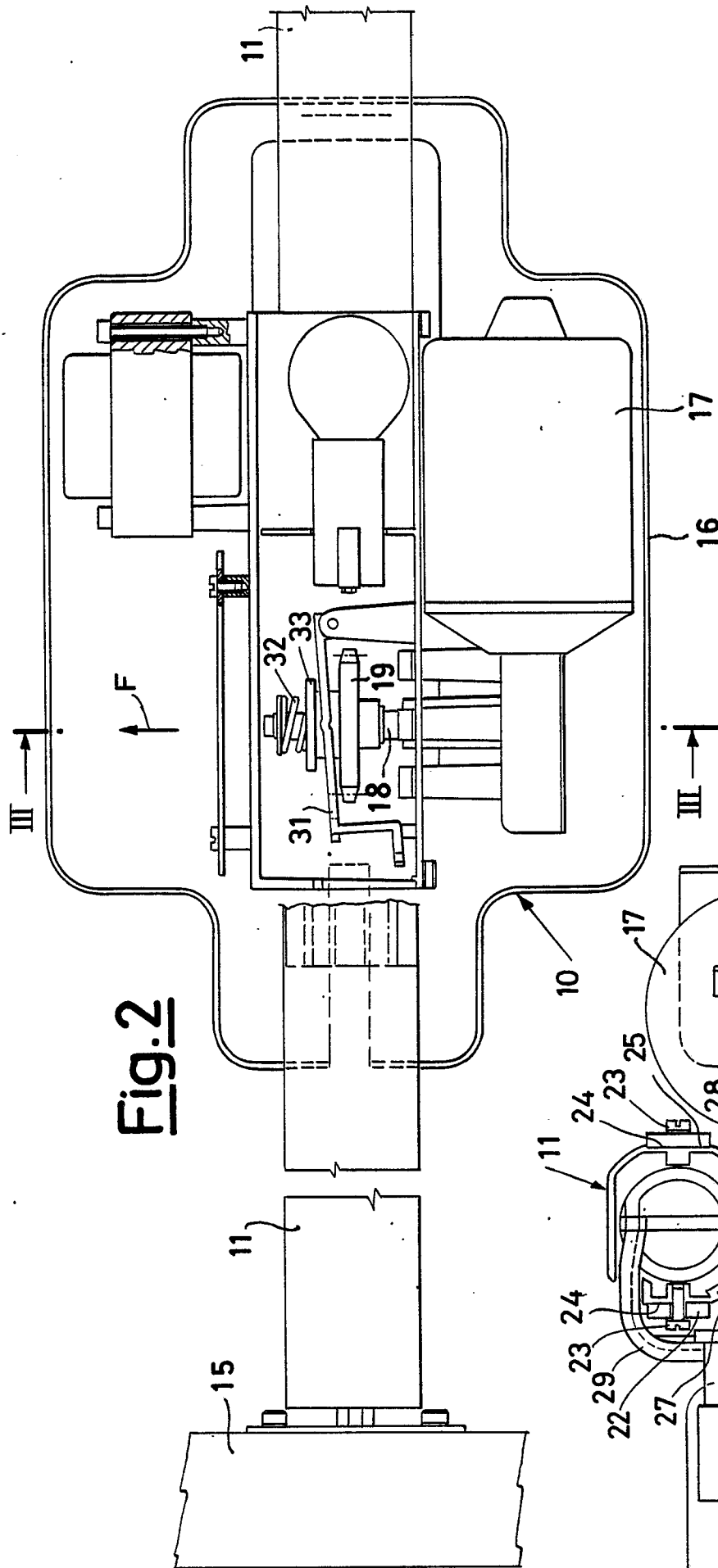
1) Motor-driven device for controlling an overhead door, of the type comprising, in combination: a self-propelling motor, a guide adapted to be fixed to a wall of the location, along which guide the said self-propelling motor translated, and means for connecting the said self-propelling motor to the said overhead door, wherein the said guide consists of at least two pieces of section iron which can be rigidly interconnected by joining means.

2) Device as described in claim 1, wherein the said section iron is tubular and enbloc therefrom there are formed two opposed channel-shaped sections for anchoring and guiding the said self-propelling motor and between and below the said sections provision is made for a rack engaged by a driven pinion of the said self-propelling motor.

3) Device as described in claim 1, wherein the said joining means comprise lateral plates bolted to the pieces of section iron, the said plates being at least partially housed in respective slightly hol-

lowed surfaces provided on parallel sides of the said section iron.







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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
Y	US-A-3 289 350 (W.E. MOODY) * Figures 1-4; column 1, line 49 - column 2, line 38 * ---	1-3	E 05 F 15/16
Y	US-A-4 520 684 (MEYER) * Figure 1; column 4, lines 35-45 * -----	1-3	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 05 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14-12-1988	Examiner KISING A.J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			